JACKPILE-PAGUATE MINE
ANACONDA MINERALS COMPANY
LAGUNA INDIAN RESERVATION

History

October 1951 - Pueblo of Laguna and Anaconda negotiate prospecting permit for Laguna Indian Reservation

November 1951 - Jackpile outcrop (along Rio Moquino) discovered by aerial radiometric reconnaissance; became Jackpile from "Jack's pile" after J.D. "Jack" Knaebel, General Manager of Anaconda's New Mexico Operations.

December 1951 - exploration drilling begins; delineated orebody suitable for open-pit mining

September 1953 - overburden stripping by private contractor begins; ore shipments from Jackpile begin several months later; ore trucked to Anaconda's Bluewater Mill 8 miles northwest of Grants

1955 - additional exploration drilling had delineated much larger orebody north of Jackpile outcrop and overburden stripping begins

1956 - Bluewater Mill expanded and converted for acid treatment; ore being shipped over new 5 mile rail spur to Santa Fe mainline near Laguna

June 1956 - larger Paguate orebody discovered 2 miles west of Jackpile orebody (presumably named after Laguna village of Paguate); ore production from Paguate began in 1962; Jackpile operations phased out in 1965; during this time, Anaconda also open-pit mined small, satellite Windwhip orebody just west of Jackpile orebody; workings later covered by Jackpile waste dumps

Total open-pit material moved = 395.8 million tons

- 371.6 million tons of overburden, ore associated waste and protore. Ore associated waste is Jackpile Sandstone (ore-bearing formation) that did not contain sufficient uranium mineralization to be protore (low grade ore); protore is Jackpile Sandstone that contained sufficient uranium mineralization to be stockpiled for possible future milling
- 24.2 million tons of ore yielded 83 million pounds of uranium oxide (U3O8) or yellow cake

Total underground production = 1.5 million tons of ore that yielded 5.7 million pounds U3O8

Total surface disturbance = 2,656 acres·

- Open pits = 1,015 acres (40% of total)
- Waste dumps = 1,266 acres (48% of total)
- Topsoil stockpiles = 32 acres
- Depleated ore stockpiles = 50 acres
- Protore stockpiles = 103 acres
- Buildings, roads, rail spur, misc. = 190 acres

Leasing

May 1952 - Lease 1, aka Jackpile Lease, issued for about 800 acres; Amended 1954, 1956, 1960 to present 4,988 acres

July 1963 - Lease 4 issued for 9,100 acres; Amended to present 2,560 acres

July 1976 - Lease 8 issued for 320 acres; originally acquired and released as Lease 6

Total leased = 7,868.27 acres

Geology

Ore bearing formation is Jackpile Sandstone in the upper Brushy Basin Member of the Jurassic Morrison Formation

Orebodies occur as pods with elongated, tabular to irregular outlines Depths range from surface outcrop to 500-600 feet; thicknesses range from a few inches to as much as 20 feet; lateral dimensions range from a few feet to several thousand feet; some pods are layered or stacked as much as 50 feet thick

Uranium occurs as coating of the sand grains.

Ore grades range from 0.02% to more than 1% U308

Mill shipments averaged 0.19 to 0.21% of U3O8

Mining

Four open pits: Jackpile, Windwhip, (covered by Jackpile dumps), North Paguate, South Paguate

Generally, open-pit mining consisted of:

1. Surface drilling to delineate orebodies
2. Stripping overburden to Jackpile Sandstone (drilling and blasting; front—end loaders and trucks)

3. Ripping Jackpile Sandstone with bulldozers
4. Separate removal of ore and ore associated waste with front- end loaders and trucks

Nine underground mines: Woodrow, Alpine Test, H-1, P-10, P-7 (essentially northern extension of P-10), P-9-2, PW-2/3, P-13 (essentially part of P-10) and NJ-45; P-10 was largest; others generally small adit mines into hillsides or highwalls in the open-pits; P-15/17 Mine (south of P-10) never mined and contains majority of remaining ore reserves

Generally, underground mining consisted of:

1. Surface drilling to delineate orebodies
2. Develop main access (shaft or adit) to orebodies
3. Develop (block out) and extract orebodies by conventional, modified room-and-pillar mining; extract ore on retreat from farthest extent of orebodies to main access; overlying strata allowed to cave in when extraction complete

Mining and Reclamation Plans

Mining began prior to NEPA, 25 CFR 177 and 30 CFR 231; No mining plans for open—pits and early underground mines

With proposal of H-1 Mine in 1972, USGS required mining plans for all new mining operations; All subsequent underground mines covered by environmental assessments (EA's) and approved mining plans

1973 - USGS Conservation Division (December 1981 became MMS, April 1983 onshore functions became part of BLM) requested open-pit mining plan to comply with Federal regulations

February 1977 - Anaconda submits comprehensive mining and reclamation plan for the entire life of all mining operations; EA prepared but no action taken

March 1979 - plan revised (projected mining until 1985) but no action taken

September 1980 - Anaconda decides to cease mining due to poor market conditions and submits first comprehensive reclamation plan; MMS determines that EIS is necessary and begins preparation

August 1981 - Anaconda withdraws plan due to proposed reroute of State Highway 279 through middle of mine area

March 1982 - Anaconda submits modified reclamation plan

February 1985 – BLM and BIA issue DEIS

October 1986 – BLM and BIA issue FEIS

December 1986 – BLM and BIA issue ROD

Mine Reclamation

December 1986/January 1987 – Anaconda negotiates "buy-out" of reclamation responsibility; all leases are terminated which ends BLM authority; BLM continues to provide technical assistance to the Pueblo of Laguna and BIA

March 1987 – Pueblo of Laguna enters into a 638 contract with BIA to perform the management, coordination and administration of the Jackpile-Paguate Reclamation Project

December 1987 – Jacobs Engineering hired to complete project construction design; BLM assists in TPEC and oversight of Jacobs' design work

June 1988 – Pueblo of Laguna establishes the Laguna Construction Company whose primary goal is to complete the Jackpile-Paguate Reclamation Project; BLM provided technical assistance

August 1989 – reclamation begins; BLM provided technical assistance in all aspects of the reclamation

March 1990 - BIA and BLM enter into a MOU to authorize BLM to assist in the radiological monitoring programs

December 1995 – reclamation is completed (one year ahead of schedule)

September 2007 – OA Systems Corporation completes Jackpile-Paguate Uranium Mine Record of Decision Compliance Assessment for Pueblo of Laguna